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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
08/856,546	05/15/97	VASWANI	1605-00901

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EXAMINER

NGUYEN, T

ART UNIT PAPER NUMBER

2772

8

DATE MAILED: 02/08/99

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Application Papers

- See the attached Notice of Publication.
- The drawing(s) filed on [] is/are [] in compliance with the requirements of the Manual of Patent Examining Procedure (MPEP).
- The proposed drawing to replace the [] drawing(s) is/are [] approved.
- The [] drawing(s) is/are [] approved.
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Priority Under 35 U.S.C. 119

- A knowledge of the [] is/are [] in compliance with the requirements of the Manual of Patent Examining Procedure (MPEP).
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Administrative

- Notice of Materiality []
- Information []
- Interview []
- Notice of []
- Notice of []

Office Action Summary

Application No.
08/856,546

Applicant(s)
Vaswani; Wilde; Dye

Examiner
Thu Nguyen

Group Art Unit
2772



☐ Responsive to communication(s) filed on _____

☐ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire three month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) 1-49 is/are pending in the application.

Of the above, claim(s) _____ is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 1-49 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☒ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been

☐ received.

☐ received in Application No. (Series Code/Serial Number) _____

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☒ Notice of References Cited, PTO-892

☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 2, 6, 7

☐ Interview Summary, PTO-413

☒ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

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DETAILED ACTION

Double Patenting

1. A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

2. Claims 1-21 are provisionally rejected under 35 U.S.C. 101 as claiming the same invention as that of claim 1-21 of copending Application No. 08/777,557. This is a provisional double patenting rejection since the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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4. Claims 1-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Accad (U.S. Patent No. 5,553,200).

As per claim 1, Accad teaches a method for dithering color in a graphics system that displays a group of pixels. The color of the pixels is represented by color shades having fewer than eight bits. The method comprises the steps of:

Generating an eight bit color shade for each pixel representing the desired color for the pixel (col.7, lines 60-64);

Truncating the desired eight bit color shade to obtain a truncated color shade (col.8, lines 4-8).

Generating FRAC and ramp value $I'(i,j)$ for each pixel, the ramp value encodes a discrepancy between the desired eight bit color and the truncated color shade value (col.12, lines 1-45).

Using the ramp value to select a color shade value of fewer than eight bits that determines the color of each pixel (col.12, lines 48-60 and col.13, lines 21-36).

Accad does not teach expressing the ramp and FRAC value in binary format and selecting one bit in the ramp value to determine the color shade of less than eight bits for each pixel, However, details disclosed at col.13, lines 14-35 suggest that by matching the $I'(i,j)$ with the threshold array, the ramp value $I'(i,j)$ provides the same purpose of determining color shade value of less than eight bits for the pixels as the claimed FRAC and ramp value would perform. The

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$I''(i,j)$ value is functional equivalent to the claimed FRAC and ramp value but is expressed in decimal form and is normalized. It would have been obvious to an ordinary person skill in the art at the time the invention was made to express the FRAC and ramp value in binary rather than in normalized decimals.

As per claim 2 and 3, Accad teaches a general way to create the color bit truncation, the truncated bit can be any number of bits (col.8, lines 1-8). Accad, therefore, includes the number of truncated bits are three least significant bits or fewer than two least significant bits.

As per claim 4 and 5, Accad teaches a look up table, the output from the table is used to select the color shade value for a pixel. Each pixel has an x, y address and the address is used to determine the color shade value of the pixel (col.13, lines 21-36 and 61-67; col.14, lines 1-24). Accad does not teach using the ramp value to determine the color shade from the look up table. However, Accad teaches using the value $I''(i,j)$ to select a color shade value using a value from the look up table (col.13, lines 21-66). Refer to discussion in claim 1 above for obviousness of using $I''(i,j)$ instead of using the ramp value as claimed.

As per claim 6, refer to discussion in claim 1 above for the claimed steps a-d.

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Accad, further, teaches producing addend value for incrementing the first color shade value (d) and incrementing the first color shade value by addend value to produce a second color shade value (d+1) and selecting the first color shade value or second color shade value to determine the color of each pixel (col.13, lines 21-35).

As per claim 7-9, refer to discussion in claim 1, 4-5 and 6 for the ramp value , the selecting first or second shade value and look up table as claimed.

As per claim 10-11, Accad does not explicitly teach the overflow condition. However, it would have been obvious to a person of ordinary skill in the art at the time the invention was made that the claimed overflow signal would have been included in the selecting first or second color shade steps as taught by Accad (col.13, lines 21-35).

As per claim 12-21, the system as recited in claims 12-21 are extended in the method as describe in claims 1-11 above.

As per claim 36, Accad teaches a method for dithering color in a graphics system. The method comprises the steps of:

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Determining a first index value to a look-up table and determining a look-up table value based on the first index value (col.13, lines 22-61). Refer to discussion in claim 1 above for the obviousness of using the ramp probability value instead of using $I'(i,j)$ value taught by Accad. In view of the discussion in claim 1, Accad also teaches determining a ramp probability value $I'(i,j)$ and using the ramp value and look-up table value to determine a dither color value (col.13, lines 62-67).

As per claim 37, Accad teaches determining a second index value and the look-up value is based on the first and second index value (col.13, lines 62-67).

As per claim 38, Accad teaches that each pixel on the screen includes a pixel address and the first and second index values are determined based on pixel address (col.13, lines 14-20)

As per claim 39, Accad teaches that pixel addresses comprise a plurality of higher and lower order bit and the lower order bits determine the first and second index value (col.16, lines 41-55).

As per claim 40-42, since Accad teaches a general way to create the color bit truncation and indexing the look-up table, the truncated bits can be any number of bits (col.8, lines 1-8) and the look-up table can be addressed with K and L number of rows and column pixels (col.13, lines

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14-21 and col.16, lines 47-55), Accad includes teaching that index value includes the least three significant bits of the pixel address. Accad does not teaches offsetting and anding with 7, however, since Accad teaches obtaining the least significant bits (col.16, lines 47-55) it would have been obvious to a person of ordinary skill in the art at the time the invention was made that adding pixel address and anding the pixel address with 7 is a modification of Accad teaching.

As per claim 43-44, Accad does not explicitly teach shifting the first and second indices. However, Accad teaches determining a look up table value using $I''(i,j)$ value (col.16, lines 36-55), it would have been obvious to a person of ordinary skill in the art at the time the invention was made that the steps of shifting first and second indices is a matter of design choice and it appear that the invention would perform determing look up table value using value $I''(i,j)$ equally well with shifting bit method taught in the present invention.

As per claim 45, Accad teaches generating color value fewer than eight bits by truncating the eight bit values (col.13, lines 22-36). Refer to discussion in claim 1 for the claimed ramp probability and FRAC value.

As per claim 46-49, Accad does not explicitly teaches shifting ramp probability value, selecting the least significant bits and adding adden value depending on overflow condition to

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obtain the dither color value, However, Accad teaches determining the dither color value utilizing look up table and $I'(i,j)$ value(col.13, lines 22-67 and col.14, lines 1-15), it would have been obvious to a person of ordinary skill in the art at the time the invention was made that the steps of shifting, adding adden value and overflow consideration together is functional equivalent to the method of determining the dither color value as taught by Accad and it would have been an obvious matter of design choice to replace the steps of shifting the ramp value, selecting the least significant bit and determining adden value based on overflow condition with determining adden value based on the value $I'(i,j)$ taught by Accad.

As per claim 22-35, refer to discussion in claims 36-49 above. Since Accad teaches a method for dithering color, he inherently teaches a system which performs the method as claimed. Further, it would have been obvious to a person of ordinary skill in the art at the time the invention was made that the method can be realized with an application software, because the software can be developed to build the look up table, to perform calculation such as the index values for the look up table, the ramp probability and to perform logic computation such as ANDing, Oring, etc.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

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Washington, D.C. 20231

or faxed to:

(703) 308-9051, (for formal communications intended for entry)

Or:

(703) 308-6606 (for informal or draft communications, please label
"PROPOSED" or "DRAFT")

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA., Sixth Floor (Receptionist).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thu Nguyen whose telephone number is (703) 306-9130. The examiner can normally be reached on Monday-Thursday from 8:00 am to 5:00 pm ET.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Powell, can be reached on (703) 305-9703. The fax phone number for this Group is (703)308-6606 .

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703)305-3900.

NTV

January 22, 1999


MARK R. POWELL
SUPERVISORY PATENT EXAMINER
GROUP 2700